



Department of Energy

Ohio Field Office
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JUN 25 2001

Mr. Christopher Jones, Director
Ohio Environmental Protection Agency
Lazarus Government Center
122 South Front Street
Columbus, Ohio 43215

DOE-0668-01

Dear Mr. Jones:

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) TREATABILITY STUDY NOTIFICATION

The purpose of this letter is to provide notification to the Ohio Environmental Protection Agency (Ohio EPA) of the Fernald Environmental Management Project's intent to conduct a Resource Conservation and Recovery Act (RCRA) treatability study. In accordance with Ohio Administrative Code (OAC) 3745-51-04(F), this notification must be submitted to the Director of Ohio EPA no less than forty-five days prior to conducting the treatability study.

Information regarding the treatability study, including a description of the treatment process, management of the treatment residuals and the projected schedule is provided as an Enclosure. If you have any questions, please contact Ed Skintik at (513) 648-3151.

Sincerely,

David R. Kozlowski
Associate Director
Operations Assurance Services

Enclosure: As stated

cc w/enclosure:
P. Harris, OEPA-SWDO
E. Skintik, OH/FEMP
A. Meyer/Fluor Fernald, Inc./MS35
T. Poff/Fluor Fernald, Inc./MS65-2
RCRA Operating Record/Fluor Fernald, Inc./MS28

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
TREATABILITY STUDY NOTIFICATION**

38 45

INTRODUCTION

This document provides information regarding the Fernald Environmental Management Project's plans to conduct a Resource Conservation and Recovery Act (RCRA) treatability study. In accordance with OAC 3745-51-04(F)((1), this information must be submitted to the Director of Ohio Environmental Protection Agency (Ohio EPA) no less than forty-five days prior to conducting the treatability study.

TREATABILITY STUDY LOCATION

The Fernald Environmental Management Project (FEMP) is a government-owned facility located in southwestern Ohio, approximately 17 miles northwest of Cincinnati. The FEMP was originally built to support United States defense initiatives, producing uranium metal used in the fabrication of fuel cores and target elements for the U.S. Department of Energy defense programs. Formal closure of production activities became effective in August 1991. At that time, the FEMP's primary function officially changed from uranium metal production to environmental restoration and site clean-up activities.

The treatability study will take place in the on-site laboratory (Building 15A) located south of the former production area at the FEMP.

PURPOSE

The purpose of this treatability study is to assess the effectiveness of a new type of porous crystalline matrix (Gubka) for stabilizing radioactive and hazardous solutions. The technology was developed under a joint research program involving the Russian institutes at St. Petersburg, Krasnoyarsk and Zheleznogorsk and the Idaho National Engineering and Environmental Laboratory. Results from this study will be used to assist in evaluating this technology for use by other DOE facilities to allow for the safe storage and/or disposal of radioactive and hazardous solutions. Other potential applications of this technology include a modified Gubka for ion exchange, sludge treatment, and some commercialization opportunities.

INVENTORY

The FEMP is currently storing 97 radiological laboratory standards (total volume of approximately 23.5 liters) in Room 180 of the Laboratory (Building 15A). These standards consist of solutions of Plutonium-239, Cesium-137, Barium-133, Ruthenium-106, Polonium-210, Radium-226, Thorium-229, Strontium-90, Americum-241 and 243, and Lead-210 in 1-2 Molar (M) Nitric Acid or 0.1M Hydrochloric Acid. No current need for these standards has been identified although they are in useable form (i.e. have not

**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
TREATABILITY STUDY NOTIFICATION**

38 4 5

expired). The standards meet the definition of corrosivity (D002). There are no underlying hazardous constituents associated with these wastes.

TREATMENT PROCESS

The treatment process involves the use of Gubka blocks (Gupka is Russian for "sponge"). These blocks are comprised of glass microspheres formed with a silicate binder and have a high surface area. The block has a density of less than 1 g/cm² and is placed on the surface of an open container of the radioactive solution. The Gubka block floats and behaves similar to a wick, pulling the liquid into the interstitial voids via capillary action. The radioactive standard evaporates, leaving the radio-metal and salts deposited in the pores of the Gubka.

As part of the process, standards of similar isotopic composition will be combined prior to treatment. Treatment will take place in a laboratory fume hood designated for the handling of radioactive materials. Proper gloves, safety glasses and protective clothing will be provided to employees and a safety shower and eyewash station will be available in the immediate area.

MANAGEMENT OF TREATABILITY RESIDUES

The loaded Gubka block will be analyzed by Gamma Spectroscopy or Alpha Spectroscopy to determine the amount of radioactive material in the Gubka matrix. The final waste form will not contain any free liquids and will be managed as non-hazardous low-level radioactive waste. Water used to decontaminate laboratory equipment will also be treated by the Gubka block. PPE and any potential contact waste streams generated as the result of treatment will be characterized and dispositioned in accordance with regulatory requirements.

SCHEDULE

Treatment of all radioactive laboratory standards is planned to be completed within 100 days following the initiation of treatment.